REMARKS

This Response is being concurrently submitted with a Request for Continued Examination in response to the Office Action mailed on January 28, 2003. In the Office Action, claims 5-15 are rejected under 35 U.S.C. § 112, ¶2; and claims 1-18 are rejected under 35 U.S.C. § 102 or § 103.

In response, Claims 1-18 have been cancelled without prejudice or disclaimer. Therefore, the rejections with respect to same have been rendered moot and thus should be withdrawn.

Further, Applicants have added claims 19-37. Applicants believe that the newly added claims recite allowable subject matter. Of these claims, claims 19, 22, and 32 are the sole independent claims. Claim 19 recites a melt-spun polysulfone semipermeable membrane. The melt-spun polysulfone semipermeable membrane consists essentially of a polysulfone compound and a solvent for the polysulfone compound wherein the melt-spun polysulfone semipermeable membrane has a homogeneous structure such that the melt-spun polysulfone semipermeable membrane has a substantially uniform pore structure throughout a thickness of the melt-spun polysulfone semipermeable membrane.

Claim 22 recites a polysulfone semipermeable membrane defined by a composition consisting essentially of a mixture of a polysulfone compound, a solvent for the polysulfone compound and a non-solvent for the polysulfone compound. The mixture has been melt-spun thereby allowing a homogeneous structure to be formed such that the polysulfone semipermeable membrane has a substantially uniform pore structure throughout a thickness of the polysulfone semipermeable membrane.

Claim 32 recites a polysulfone semipermeable membrane having a substantially uniform pore structure throughout a thickness dimension thereof. The polysulfone semipermeable membrane is constructed from a melt-spun composition that consists essentially of a polysulfone compound, a solvent for the polysulfone compound, and a non-solvent wherein the solvent includes tetramethylene sulfone, antipyrine, δ-valerolactam, diethyl phthalate, and mixtures thereof.

Applicants have surprisingly discovered polysulfone semipermeable membranes that have a uniform pore structure useful for liquid separation, such as micro-filtration, ultra-

filtration, reverse osmosis, dialysis and the like. See, specification, page 6, lines 11-15. The semipermeable membranes of the present invention are made from uniquely discovered melt-spun technology. See, specification, page 1, lines 5-7. This contrast conventional membrane fabrication techniques, such as solution-spinning techniques that can require large amounts of solvents and non-solvents and further are generally known to produce asymmetric membranes that have a non-homogeneous porosity that progresses through a thickness dimension of the membrane. See, specification, page 3, lines 3-15. Applicants have provided a number of illustrative examples that demonstrate, for example, the desirable permeability characteristics of the homogeneously-structured polysulfone membranes of the claimed invention. See, specification, pages 7-25.

In contrast, Applicants believe that the cited art is deficient with respect to the claimed invention. The Patent Office primarily relies on U.S. Patent No. 5,462,867 ("*Azad*"), U.S. Patent No. 5,096,585 ("*Nguyen*") and U.S. Patent No. 4,900,449 ("*Kraus*") in support of the prior art rejections. However, the primary focus of *Azad* relates to a microporous membrane made from a four-component dope composition wherein the dope composition includes a primary polymer component, a secondary polymer component and two solvents, one of which acts as a solvent for the secondary polymer component but a non-solvent for the primary polymer component. See, *Azad*, column 14, lines 41-60. Indeed, an important feature of *Azad* is the selection of the polymer pair to be employed in the dope composition, preferably, a PES/PEO polymer pair. See, *Azad*, column 15, lines 2-28.

With respect to *Nguyen*, the emphasis of this reference relates to a porous membrane that is made from a casting solution that contains two or more polymers. See, *Nguyen*, column 3, lines 6-18. As preferred, the primary polymeric components of *Nguyen* include a polysulfone polymer and a substantially protein non-absorptive prepolymer, such as a hydrophilic isothiocyanic end-capped polyurethane prepolymer. See, *Nguyen*, column 3 at lines 65 to column 4 at line 42. Further, Applicants believe that *Nguyen* is directed to a conventional process for manufacturing porous membranes as it discloses a wet-spinning process that utilizes almost 80 percent by weight of solvent and non-solvent in the casting solution. See, *Nguyen*, for example, cols. 12-13, Examples 1 and 2.

With respect to *Kraus*, this reference also relates to a conventional process for making porous membranes. Indeed, *Kraus* discloses over 80% by weight of the solvent and non-solvent in the membrane casting solution where the non-solvent, such as PEG, is provided in a much greater amount than the solvent. See, *Kraus*, column 5, lines 5-10.

Based on at least these noted reasons, Applicants believe that the cited art is directed to membranes that have a different compositional and structural make-up as compared to the melt-spun polysulfone semipermeable membranes of the claimed invention. As previously discussed, claim 19 recites a melt-spun polysulfone semipermeable membrane that consists essentially of a polysulfone compound and a solvent, such as tetramethylene sulfone, antipyrine, δ-valerolactam, diethyl phthalate, and mixtures thereof (claim 21), such that the membrane has a homogeneous structure with a substantially uniform pore structure throughout a thickness thereof. Claim 22 recites a polysulfone membrane defined by a mixed composition that consists essentially of a polysulfone compound, a solvent and a non-solvent that has been melt-spun to provide a homogeneous structure as claimed. Further, claim 30 recites that the polysulfone compound is composed of bisphenol A polysulfone; the solvent is composed of sulfolane; and the non-solvent is composed of poly(ethylene glycol). As further defined in claim 31, the melt-spun composition includes about 30% to about 38% by weight of the polysulfone compound. Moreover, independent claim 32 recites a polysulfone semipermeable membrane with a substantially uniform pore structure throughout a thickness dimension thereof wherein the membrane is constructed from a melt-spun composition that consists essentially of a polysulfone compound, a solvent as claimed and a non-solvent. As further defined, the solvent and non-solvent are present in a ratio of about 2.5:1 to about 4.5:1.

Again, the melt-spun polysulfone semipermeable membranes have a homogeneous structure that includes a substantially uniform pore structure throughout a thickness thereof. The melt-spun membranes of the present invention display desirable permeability characteristics that can be used for a number of different liquid separation applications as discussed above. This contrasts membranes made from conventional processes, such as solution spinning processes that typically employ large quantities of solvents and non-solvents and further have an asymmetric structure. In view of same, Applicants believe that one skilled in the art would consider that the claimed invention and the cited art are clearly distinguishable. Therefore, Applicants

respectfully submit that the claimed invention should be rendered patentable over the cited art, even if combinable.

For the foregoing reasons, Applicants respectfully submit that the present application is in condition for allowance and earnestly solicit reconsideration the same.

Respectfully submitted,

BELL, BOYD & LLOYD LLC

BY

Robert M. Barrett
Reg. No. 30,142
P.O. Box 1135
Chicago, Illinois 60690-1135
Phone: (312) 807-4204

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